INSTITUTE of STATISTICS
Oxford

Bulletin Vol. 8 *June 1946* *No. 6*

UNITED KINGDOM EXPORT TARGET

The target for exports in the post-war period has been put at 50 per cent over the pre-war volume. In the White Paper containing the statistical material presented during the Washington negotiations (Cmd. 6707) it was explained that this increase would pay only for the pre-war volume of imports; ' the full restoration of a reliable equilibrium which can persist without measures of restriction or the other defensive mechanisms of the type with which it is hoped to dispense, may require a volume of exports nearer 75 per cent than 50 per cent in excess of the pre-war level '. It is not clear precisely what is meant by ' reliable equilibrium ' but apparently it takes into account an increased demand for imports following the realization of full employment and a higher standard of living, and makes provision for the repayment of war and post-war debts. The implication is that 75 per cent is an upper limit which industry may have to aim at if the country's total obligations are to be fully met from receipts.

It is proposed in this paper to estimate the volume of exports required to achieve equilibrium in the U.K. balance of payments at the end of the transition period. For this purpose the year 1952 has been taken. As a result of the agreement with the United States, we have now accepted the conditions of free multilateral trading, and whilst our right to impose quantitative restrictions on imports remains, it is clearly envisaged that by 1952 this country will be in a position not only to meet all debt obligations but also to dispense with all forms of restrictions. Equilibrium will be taken to mean equality of current receipts and payments (including war debt repayment) without the necessity for further sale of assets or loss of monetary reserves.

Three factors would be expected largely to influence the increase in the level of exports required in 1952 :

(*a*) A greater demand for imports as a result of full employment and increased efficiency;

(*b*) The growth of large debts arising out of the war; and

(*c*) Loss of income resulting from the sale during the war years of part of our investments overseas.

Two of these factors increase our payments, whilst the third reduces the amount of income previously received. Moreover, in many of the pre-war years the U.K. balance of payments showed an excess of payments over receipts. The extent to which exports of British merchandise must be increased to achieve equilibrium depends on the total magnitude of these factors.

(1) *Import-National Income Ratio*

In the conditions of free multilateral trading now agreed to by the United Kingdom, the level of a nation's imports is determined, as Sir Hubert Henderson observed in the January number of the BULLETIN, ' as the aggregate result of the decisions of its individual citizens and business men, in accordance with the length of the purse which each happens to command '. A high level of employment implies a high level of imports. The close relationship[1] between the two is shown clearly in the accompanying chart. There appear to be two separate regressions,[1] one for the years 1924 to 1931, another for the years 1932 to 1938. In the earlier period imports were, on the average, 21 per cent of the national income, and in the latter period 18.7 per cent (Table I). After 1931 the whole level of imports fell by about £80 millions (1935 prices). In the earlier period, if the years 1926 and 1931 are excluded, the marginal ratio (i.e. the change in imports as a percentage of the change in national income) was 23 per cent which is slightly larger than the total import-national income ratio. For the years 1932 to 1938 the marginal ratio of imports to national income was 18.7 per cent which is the same as the total ratio.

TABLE I

Relationship between U.K. Imports and National Income

Year	National Income at Cost		Retained Imports		
	Index Numbers of Quantity* (1935 Base) (1)	Value at 1935 Prices (2)	Index Numbers of Volume† (1935 Base) (3)	Value at 1935 Prices (4)	Imports as Proportion of National Income: (4) as % of (2) (5)
		£ millions		£ millions	%
1924	84	3,293	95.5	669	20.3
1925	86	3,371	99.2	695	20.6
1926	83	3.254	103.7	727	22.3
1927	90	3,528	106.2	744	21.1
1928	91	3,567	103.0	721	20.2
1929	94	3,685	108.9	763	20.7
1930	90	3,528	106.3	745	21.1
1931	88	3,450	108.6	761	22.1
1932	89	3.489	94.9	665	19.1
1933	91	3,567	94.4	661	18.5
1934	95	3,724	99.6	698	18.7
1935	100	*3,920	100.0	701	17.9
1936	104	4,077	107.0	750	18.4
1937	106	4,155	113.8	797	19.2
1938	102	3,998	108.6	761	19.0

* A. L. Bowley : ' Studies in the National Income ', page 195.

† Based on the index numbers of the volume of retained imports given in the U.K. Statistical Abstracts.

Can this relationship be held to apply in the post-war period ? Some

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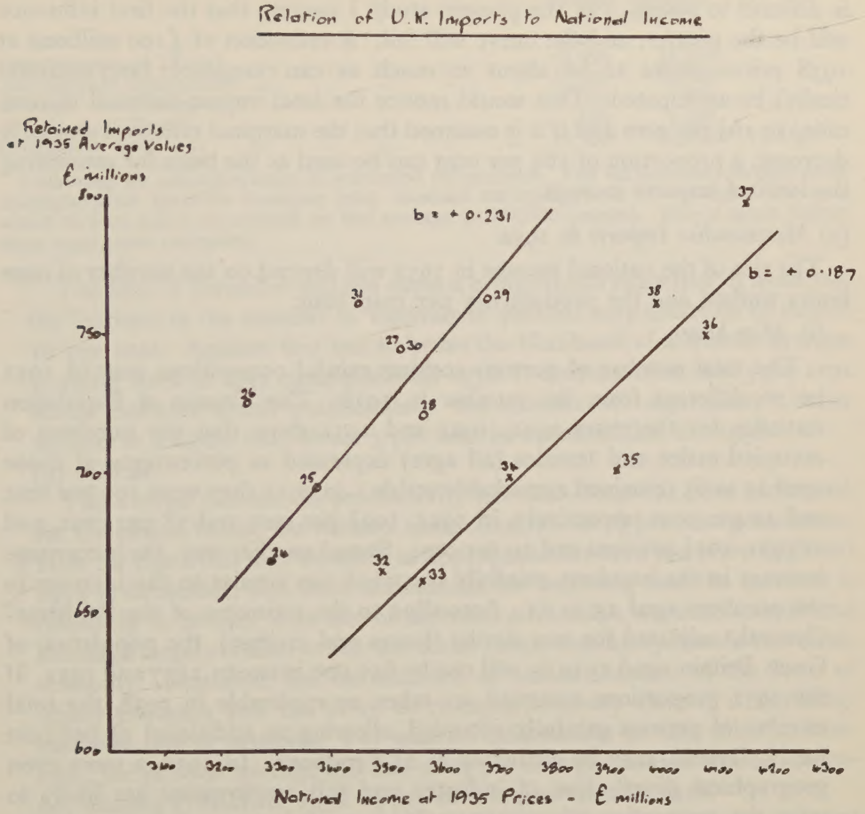
[1] These are simple regressions. Further analysis introducing time and price changes and allowing for the lag between imports and their consumption, may be fruitful, but the simple linear correlation coefficients are high.



articles previously imported will be manufactured henceforward in this country, and there has been a tendency to greater self sufficiency in respect of certain foodstuffs. The whole curve may therefore shift downwards once more. On the other hand, against this must be set the possibility of some reduction in the U.K. import tariff. The Americans, in their proposals for consideration by an International Conference on Trade and Employment (Cmd. 6709), stress the desirability of an all-round reduction in customs tariffs and the elimination of preferences. The U.K. is not a high tariff country; Empire goods for the most part enter free of duty and the preference, in those instances, is equivalent to the general rate of duty. The complete elimination of Imperial preference would entail either our becoming largely a free-trade country once more or imposing customs duties on Empire goods previously free of duty. If, instead of the complete elimination of Imperial preference some reduction is agreed to, a lowering of the general tariff would to some extent achieve both the American aims. But this would raise the import-national income ratio and tend to shift the curve upwards again. What the relative importance of these two opposite pressures will be is difficult to assess. For the present study I assume that the first influence will be the greater, and the curve will fall. A reduction of £100 millions at 1938 prices seems to be about as much as can reasonably (and optimistically) be anticipated. This would reduce the total import-national income ratio[1] to 16½ per cent and if it is assumed that the marginal ratio will similarly decrease, a proportion of 16½ per cent can be used as the basis for estimating the level of imports in 1952.

(2) *Merchandise Imports in* 1952

The size of the national income in 1952 will depend on the number of man hours worked and the productivity per man hour.

(i) *Man hours*

The total number of persons seeking gainful occupations may in 1952 be no different from the number in 1938. The Census of Population statistics for the years 1911, 1921 and 1931 show that the numbers of occupied males and females (all ages) expressed as percentages of those aged 15 to 65 remained remarkably stable : in 1911 they were 103 per cent and 40 per cent respectively, in 1921, 102½ per cent and 38 per cent, and in 1931, 101½ per cent and 39 per cent. Stated another way, the percentage increase in the numbers gainfully occupied was similar to the increase in the numbers aged 15 to 65. According to the estimates of the Registrar-General,[2] adjusted for war deaths (forces and civilian), the population of Great Britain aged 15 to 65 will rise by 650,000 between 1937 and 1951. If the 1931 proportions occupied are taken as applicable in 1938, the total number of persons gainfully occupied, allowing an additional 2¼ per cent for N. Ireland, may be estimated as 22.5 millions. In 1952, a more even geographical distribution of industry and full employment are likely to raise the proportion of women seeking gainful occupations to, say, 41 per cent; the proportion of men is assumed to be 102 per cent. On this basis, again adding 2¼ per cent for N. Ireland, an estimate of 23.5 millions is obtained. From this must be deducted the loss of juveniles resulting from the raising of the school leaving age to 15, compulsory part-time education and conscription—a total loss of possibly one million persons,[3] which will reduce the 1952 figure to 22.5 millions. Any increase in the numbers of civilians in work must, therefore, come from the reduction in unemployment, assuming full employment in 1952 :

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[1] The national income and retained imports are taken for the year 1938—£4,600 millions (Cmd. 6623) and £860 millions (Annual Statement of U.K. Trade).

[2] ' Current Trend of Population in Great Britain ' Cmd. 6354 (1942).

[3] This is a rough and uncertain figure. Raising the school leaving age to 15 will involve the loss of 400,000 juveniles, part-time education up to 18 years for one day a week would withdraw the equivalent of about 300,000 full-time persons (or man-years) and conscription (for six months) would represent a loss of 150,000—a total of 850,000. If conscription covers military training for a year instead of six months, the total loss becomes one million. If the school leaving age is further raised to 16, the total will be about 1,400,000. This labour is not, of course, wholly lost ; the entrance age is older, but the education should result in a more skilled and more efficient labour force.

	United Kingdom (000's) 1938	United Kingdom (000's) 1952	
Population aged 15—65	32,950	33,600	
Seeking paid occupations	22,500	22,500	
Deduct: Unemployed*	2,200	750	
Forces	350	1,000	
Civilians in work	19,950	20,750	(+4%)

*Allowing for unemployment in uninsured occupations. Full employment implies some unemployment (persons changing jobs, seasonal unemployment, technological changes) which is here taken to amount on the average to 750,000 persons. This is much higher than most other estimates.

The loss of juveniles will not cause a proportional reduction in work and the increase in the number of 'equivalent' persons may therefore be nearer 10 per cent. Against this has to be set the likelihood of a shorter average working week in 1952 compared with 1938. A decrease of at least 5 per cent seems probable which would reduce the number of 'equivalent' hours worked to a figure only about 3 per cent in excess of that for 1938.

(ii) *P.M.H.*

The overall increase in productivity per man hour has been estimated for the period before the war at a compound rate of 1½ per cent per annum. How far this trend may be taken as appropriate between the years 1938 and 1952 is debatable, but there are reasons for believing that the increase is not likely to be less. The rate of technical advance in wartime is rapid and although largely related to the war sector, must eventually benefit the whole economy. Moreover the introduction of standardization in the form of utility products and the drive to re-equip industry should, if anything, raise the rate of progress. For want of information on this subject, however, the pre-war average increase of 1½ per cent per annum will be accepted, making P.M.H. in 1952 23 per cent higher than in 1938.

Taking the number of 'equivalent' hours worked in 1952 as 3 per cent up, the real national income may show an increase of 27 per cent. At factor cost the national income in 1938 was £4,600 millions; in 1952 the figure at 1938 prices may therefore be estimated at about £5,800 millions. If imports represent 16½ per cent of this they will amount in 1952 to £960 millions at 1938 prices.

(3) *Debt Payments*

The total U.K. debt obligations are not clear yet. The American credit if fully drawn on will require annual instalments of £35 millions, including lend-lease settlement, to be paid over 50 years commencing 1952. It seems likely that this line of credit will be fully required and that the annual instalments will therefore amount to that sum. In addition, Canada has granted a credit of £280 millions, on similar financial terms, the annual instalments being £9 millions. There are also the accumulated sterling balances to be brought into the picture. At the end of 1945 these must have amounted to over £3,500 millions and are still rising. In the financial agreement between the U.K. and the U.S.A. this country undertook to make early settlement on the basis of having these balances adjusted as a contribution to the settlement of war and post-war indebtedness, presumably in much the same way as the Americans have written off most of the lend-lease obligations. In the *Times* dated October 23rd, 1945, it was suggested that a cut of one-third in these balances was being urged on creditors. So far as the Indian balances are concerned—these amount to about one-third of the total—the *Indian Economist* dated December 14th, 1945, argues that India cannot afford to make any such reduction in her credits: '. . . India has contributed in relation to her economic capacity very much more than Britain and consequently India must be treated as generously as the U.S. has treated Great Britain.' Repayment in full is urged with early funding in 1947 and repayment over a period not exceeding 20 to 22 years. Not all of these balances will be withdrawn; some part of them, possibly £700 to £1,000 millions, are likely to be held as currency cover. For the present calculation the more optimistic assumption will be made that our creditors will agree in fact to a cut of one-third in the debts owed to them and that the balance (probably about £2,000 millions, after allowing for currency cover and an immediate release of about £100 millions) will be funded for repayment from 1951 onwards at 2 per cent interest in 50 instalments amounting to about £65 millions each. Thus debt settlements may require annual payments amounting to £110 millions. If less is written off the sterling balances or the period shortened, the total debt payments are likely to be higher.

(4) *Invisible Exports*

According to the White Paper containing the statistical material presented during the Washington negotiations, overseas investments amounting to over £1,118 millions were sold during the war. Although the capital value of the residue cannot be accurately known the net income from overseas investments amounted in 1945 to £97 millions, compared with a net income of £200 millions in 1938. The 1945 figure excludes receipts which may later be obtained from investments in enemy territories, but it is generally felt that net investment income is not likely henceforward to be more than about half the pre-war figure. Thus, for all practical purposes it may be taken as £100 millions, which means that taking into account the interest portion of the debt payments discussed in the preceding section, interest and dividends received will continue to exceed, although by £30–£35 millions only in 1952, interest and dividends paid out.

Net shipping receipts, which in 1938 totalled £100 millions, normally provide the next largest source of income. Although the merchant fleet is now well below its pre-war strength it can be assumed that these losses will be entirely replaced. The enormous growth in the size of the U.S. merchant navy during the war years and the clear intention of the Americans to maintain a fleet substantially larger than before the war must be taken into account as an offset to any elimination or diminution of competition from ex-enemy countries. However, with an expansion of world trade and possibly higher freight rates some increase in these receipts may be forecast. Our net shipping income for 1952 is, therefore, put at approximately £150 millions.

The other items of invisible exports are relatively small. London ought surely to maintain its merchanting and financial business and no decrease from this source need be expected. The remainder will be influenced by the success of the ' Come-to-Britain ' campaign. All things considered it seems probable that other income will increase, possibly by as much as £25 millions. Thus according to these calculations, invisible exports in 1952 will amount to about £310 millions, compared with £335 millions in 1938, a drop of £25 millions. This decrease is not so large as has generally been expected; it could not cause anything like a 50 per cent increase in the volume of exports.

(5) *Volume of Merchandise Exports*

The figure for merchandise exports is merely a residual making total receipts equal total payments—see Table 2. It is difficult to say what the terms of trade are likely to be in 1952 compared with 1938. For the purpose of these calculations it is assumed that prices will fall somewhat after 1946 and for both imports and exports will, in 1952, be 50 per cent over 1938 prices. This implies no change in the terms of trading.

TABLE II

Estimated U.K. Balance of Payments in 1952 compared with Pre-War

	1938* £ millions	1952 £ millions
Payments		
(1) Retained imports of merchandise*	858	1,440
(2) Net Government expenditure overseas	13	20
(3) Interest on and repayment of debts	—	110
Total	871	1,570
Receipts		
(4) Net income from overseas investments	200	100
(5) Net shipping income	100	150
(6) Exports of U.K. produce and manufactures†	470	1,260
(7) Other income...	25	60
Total	805	1,570

* *Statistical Abstract for the United Kingdom* (1940), Cmd. 6232.

† Excluding gold and silver bullion and coin.

‡ Excluding payment of the interest on debts arising out of the war, included in item (3).

The exports required to achieve equilibrium thus amount to £1,260 millions, which, at the assumed price level, represents an increase in volume of 79 per cent over pre-war. This figure, made up of so many estimates on so many assumptions, must clearly be subject to a fairly large margin of error and cannot be regarded as significantly different from 75 per cent. On the other hand, there are reasons for believing that the error may, if anything, be biased and the volume of exports needed to achieve a reliable equilibrium may be even greater than 79 per cent in excess of the 1938 level. In spite of all the uncertainties which must surround an estimate of this sort there appear to be grounds for regarding 75 per cent as a lower rather than an upper limit.

(6) *Conclusion*

We are now in a position to break this increase into its component parts and assess the relative importance of each. The estimated magnitudes of the various items are shown in Table 3. It is clear that the loss of invisible exports is by no means the main influence.[1] What is interesting is the increase in the volume of exports required because of higher import prices. The actual level of prices assumed for 1952 may be wrong but imports will certainly be dearer compared with pre-war, and the level may be even greater than that allowed for in this computation. Unless a really big change in the terms of trade in our favour can be expected (which is doubtful), the increase in exports from this cause will certainly be substantial. Pre-war imports will cost an additional £430 millions. This will be partially offset by an extra £235 millions obtained from higher export prices, leaving £195 millions to be paid for by better prices for the invisible exports—e.g. higher freight rates—an advance in the rate of earnings on investments, by an increase in the volume of services sold, or by an increase in the volume of merchandise exports. The net reduction in the value of invisible exports is the result of a gross loss, notably from overseas investments, in receipts at 1938 prices, minus some increase in the volume of certain items (e.g. shipping business)

TABLE III

Increase in Exports, 1952 Compared with 1938

	Value	Volume
	£ millions	% on 1938
(1) Increase in retained imports	152	21½
(2) Debt payments	110	15½
(3) Loss of invisible exports	35	3½
(4) Increase in Government overseas expenditure (net) ...	7	1
(5) Dearer imports :		
(*a*) Offset by higher export prices	235	—
(*b*) Not covered by higher export prices	195	28
(6) 1938 deficit*	66	9½
Total increase of Merchandise Exports	790	79

* Excluding an excess of exports over imports of silver bullion and coin.

† Item 5 (b) represents the sum not covered by higher prices for merchandise exports. Part of this will, in fact, be covered by the realization of higher prices for the remaining invisible exports. If that is deducted from 5 (b), the loss of invisible exports (item (3)) must be correspondingly increased.

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[1] There has been a tendency to regard the sale of overseas investments as the primary cause of the increase in the volume of exports. ' Our added requirements in production compared with 1938–39 were . . . to make good the loss of £200,000,000 annually of free imports due to the liquidation of our foreign investments, a loss that could only be compensated by exporting 50 to 75 per cent more in volume than in 1938 '—Sir Stafford Cripps, addressing a meeting of employers, March 7th (*The Times*, March 8th, 1946). ' During the war we had to sell our foreign investments to pay for the arms, food and other things we needed. Apart from any temporary relief we may get by loans from our friends across the Atlantic, we can only buy from abroad now if we pay by exporting goods or rendering services.'—C. R. Attlee in his broadcast talk, March 3rd (*The Times*, March 4th, 1946).

and in the prices realized, the loss exceeding the gains by £25 millions. If the contribution from improved prices for these receipts is assumed to be about £60 millions, the increase in the volume of merchandise exports needed because of dearer imports (item 5b in Table III) would drop to a little over 19 per cent, whilst the net loss of invisible exports, before taking into account the better prices, would correspondingly raise the required increase in exports to just over 12 per cent instead of 3½ per cent. Even so, it is clear that the loss of invisible exports is relatively unimportant. The loss of £100 millions investment income would only make it necessary to increase exports by 14 per cent; the deficit[1] incurred in 1938 is nearly as important as the loss of this income. The combined effect of the loss of investment income and of debt payments will, according to these estimates, raise the volume of exports by 30 per cent in excess of pre-war.

An increase in the volume of retained imports will require 21½ per cent more exports, whilst debt payments will result in a further rise of 15½ per cent. Setting aside these factors, the export target needed to pay only for the pre-war level of imports will be about 40 per cent up on pre-war, compared with the official estimate of an increase of 50 per cent. The White Paper ' full equilibrium ' target assumes, in effect, that the main factors previously omitted—a larger demand for imports and repayment of war and post-war debts—will make necessary a further increase in the volume of merchandise exports of less than 25 per cent. In the light of Table III this certainly looks low.

The conclusion is clear. In relation to 1938—which is the usual pre-war year taken for comparison—the target for exports appears to be an increase of at least 75 per cent. This is very high not because of the sale of overseas investments during the war years but for a variety of reasons. The realization of full employment will alone be an important factor. If other countries are also successful in achieving full employment our problem will, to some extent, be mitigated, but mitigation is not elimination. The goods will have to be sold as a result of sales efforts on competitive terms; there can be no assistance from trade or purchase agreements or inconvertible sterling. If the increase required is between 75 per cent and 100 per cent it might be advisable to say so now; it will surely be better to aim too high than to aim too low. The task before industry is indeed herculean.

F. A. FRIDAY.

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[1] The year 1938 was not exceptional in showing a deficit. Payments exceeded receipts in six out of the eight years 1931 to 1938.

LOW COST FAMILY DIETS AND INDIVIDUAL NUTRITION

PART I: FAMILY DIETS

Our half-yearly inquiry into the cost in Oxford of an inexpensive family diet[1] was undertaken again in April 1946; it is the eleventh in this series. Although since our last inquiry in November 1945, no striking changes had occurred in the official rations, a considerable number of modifications in the diet schedule compiled for that month was necessary in order to obtain a balanced diet at low cost that could be procured by a housewife in Oxford without difficulties.

(1) *A 'Human Needs' Diet in April*, 1946.

The diet for April 1946, and the changes as compared with the schedule for November 1945, are set out in Table I. By April 1946, the ration of cooking fat per person per week had been reduced from 2 ounces to one ounce. Dried eggs were no longer available and were partly replaced by eggs in shell, while dried Household milk was on sale only in those shops that had stocks of it left. In general, the supply of Household milk was still plentiful, but it was frequently sold only to regular customers. We therefore replaced in our main schedule this item partly by fresh milk, and partly by skimmed and sweetened condensed milk, which cost 5 pence a tin[2] and required 4 'points'. The sugar content of the condensed milk and of the increased allowance of dried fruit in our diet for April, would yield the sugar value of about 11 ounces of syrup, as against the lb. of syrup that was included in our schedule for November. No stewing apples were available in April, and less sweetening matter was therefore needed.

The reduction in the ration of cooking fat could, to some extent, be made good by suet—also rationed on points—but at a higher cost. Cheap pulses (haricot beans, split peas, and lentils), which in our inexpensive diet are important sources of essential nutrients, and in particular of protein and of iron, were unobtainable in many shops, in April 1946. Dried green peas at 10 pence a lb could, however, be purchased, and we suggest in Table 1 that the housewife would have bought 1 lb of them in lieu of the 2 lb 4 ounces of various pulses, at an average price of less than 6 pence a lb, in November 1945, and filled the gap with other foods. As far as calorific intake is concerned this would almost certainly mean that a family with a low income and with an already high consumption of potatoes, would want some more bread and flour. Hence we assumed that in spite of the appeals for a reduction in the consumption of bread, a family that can only afford a 'human needs' diet, would have bought in April 2 lbs of bread and 4 ounces of flour per week more than in November.

Notwithstanding the increase in the quantities of these two cheapest foods,

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[1] For a family of 5 persons: husband, wife, 2 children aged 7 to 12 years, and one child aged 5 to 7 years.

[2] Equivalent to 1⅞ pt. of skimmed and sweetened cow's milk.

TABLE I. *Weekly 'Human Needs' Diet for a Family of 5 Persons*

(Diet A)

		Quantity	Price[1] p. Unit s.	d.	Changes since November 1945 Quantity	Outlay *s.*	*d.*
(*a*) Rationed Foods :							
	1 Meat	7lb.		10[2]	...		...
	2 Bacon	15oz.	1	9	...		...
	3 Margarine	1lb. 14oz.		9	...		...
	4a Cooking Fat	5oz.		9	— 5oz.	—	2¾
	4b Suet	4oz.	1	5	+ 4oz.	+	4¼
	5 Sugar	3lb. 8oz.		4	...		...
	6a Jam	4oz.	1	0	...		...
	6b Syrup	...		...	—1lb.	—	8[10]
	7 Tea	8oz.	2	8	...		...
	8 Cheese	15oz.	1	1	...		...
	9a Eggs, shell	10 eggs		2	+9 eggs	+ *1*	*6*
	9b Eggs, dried	...		...	—1¼ pkt.[11]	— 1	6¾
	10 Pulses[3]	1lb.		10	—1lb. 4oz.	—	2½
	11 Rolled Oats	2lb. 8oz.		3½	...		...
	12 Dried Fruit[4]	1lb.		9	+ 4oz.	+	2¼
	13a Household Milk ...	...		...	—⅝ tin[12]	—	5¾
	13b Cond. Milk, skimmed	1 tin[5]		5	+ 1 tin	+	*5*
	14 Tinned Salmon ...	1⅓ tin[6]		9	+1⅓ tin	+ *1*	*0*
	Outlay on Group (a)		*18*	*8½*		+	*4¼*
(*b*) Fresh Milk	15a Ordinary	15½ pt.		4½	+1½ pt.	+	*6¾*
	15b School	5 pt.[7]		1½	...		...
	Outlay on Group (b) ...		*6*	*5¼*		+	*6¾*
(*c*) Unrationed Main Carbohydrate Foods :							
	16 Bread	20lb.		2¼	+2lb.	+	4½
	17 Flour	3lb. 4oz.		3	+ 4oz.	+	0¾
	18 Potatoes	21lb.		1[8]	...		...
	Outlay on Group (c) ...		*6*	*6¾*		+	*5¼*
(*d*) Vegetables (*excl. Potatoes*) :							
	19a Swedes	3lb. 8oz.		2	...	+	2½
	19b Carrots	3lb. 8oz.		1¾	...	+	*1*
	19c Cabbage	7lb.		4	...	+	*10½*
	Outlay on Group (d) ...		*3*	*5¼*		+ *1*	*2*
(*e*) Other Foods :							
	20a Macaroni	8oz.		7½	...		...
	20b Semolina	1lb. 8oz.		4	...		...
	21 Cocoa	4oz.	1	7[9]	...		...
	22 Condiments	...		4	...		...
	23 Cooking Apples ...	...		...	— 8oz.	—	*3*
	24 Herrings, fresh ...	...		...	—2lb.	— *1*	*2*
	25 Pork Sausage Meat ...	12oz.	1	1	+ 4oz.	+	*3¼*
	Outlay on Group (e) ...		*2*	*4¼*		— *1*	*1¾*
	Total Outlay on Diet A ...		**37**	**6**		**+ 1**	**4½**

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[1] Eggs in shell, price per egg ; condensed milk and tinned salmon, price per tin ; fresh milk (ordinary and school), price per pint ; condiments, total outlay ; all other foods, price per lb. [2] Average price. [3] In November 1945, split peas, lentils, and haricot beans ; in April 1946, dried peas. [4] Sultanas and seedless raisins. [5] Equivalent to 1⅞ pt. of sweetened skimmed milk. [6] Grade III : approximately 10 oz. [7] Owing to a misprint in Table I, BULLETIN, Vol. 7, No. 17, the quantity for November 1945, was given as 7½ pt. ; all the calculations, however, were based on the correct quantity of 5 pt., *viz.* 1⅓ pt. per child per week. [8] 8d. for 7 lb. [9] Bought in half-pound tins. [10] Bought in 2 lb tins. [11] Equivalent to 15 eggs in shell. [12] Equivalent to 2½ pt. of skimmed milk.

TABLE II

Foods Rationed on ' Points ' in ' Human Needs ' Diet A

	Quantity	Points
Suet	4oz.	4
Dried Peas	1lb.	1
Rolled Oats	2lb. 8oz.	5
Dried Fruit	1lb.	8
Cond. Milk, skimmed	1 tin	4
Tinned Salmon[1]	1¼ tin	8
Total No. of Points		30

[1] Grade III.

the cost of the ' human needs ' diet has risen by nearly 4 per cent, from November 1945 to April 1946, although the Ministry of Labour index of the retail cost of food has remained constant. Most of this rise in the cost of our ' human needs ' diet was, however, caused by the seasonal upward swing in the prices of cabbage, swedes, and carrots; these vegetables are not included in the Ministry of Labour index.

Diet A assumes the purchase of all the family's rations—substituting margarine for butter—with the exception of 4½ ounces of tea, allowing per week only 8 ounces of it instead of the full ration for a family of 5 persons, of 12½ ounces.

The outlay in Diet A of the 30 ' points ' available per week to 5 persons, is given in Table II. It will be seen that all the ' points ' have been utilized. Eight ' points ' are saved in April through omitting a lb of syrup from the schedule; but the same number of points was required for tinned salmon, which replaces the fresh herrings that were included in the diet for November.

(2) *Low Cost Diets* :

Several modifications of the ' human needs ' diet A will be found in Table III. We have distinguished these diets in Table III by the letters B, C, and D. In diet B, meat at an average price of one shilling a lb is substituted for the cheaper meat in Diet A, at 10 pence a lb. The deficiency in nutrients caused by this reduction in the family's weekly meat ration from 7 lbs to 5 lbs 13 ounces, at an unchanged outlay of 5 shillings 10 pence, required certain adjustments, which raise the cost of diet B by 7½ pence, to 38 shillings 1½ pence. Diet C assumes that the housewife was able to purchase Household milk, and replaced by it 1½ pints of full cream fresh milk and one tin of skimmed condensed milk. She then had four unused ' points ' in hand, three of which might have gone towards the purchase of 6 ounces of syrup and one towards that of 4 ounces of biscuits. This diet C would have cost 1¾ pence more than the basic diet A, *viz.*, 37 shillings 7¾ pence.

Although in April 1946, fish in general was plentiful in Oxford, fresh herrings seemed to be scarce in some parts of the town. Fishmongers suggested that this reflected lack of demand for herrings in the presence of a good supply of other fish. Whatever the reason, a housewife who wanted herrings could not always buy them. We have therefore omitted herrings from our basic diet A, but for diet D we have included 1 lb 8 ounces of them, and also 8

TABLE III

Weekly Low Cost Diets for a Family of 5 Persons

Diets B, C, and D

	Quantity	Outlay s.	Outlay d.	*'Points' Value*
(1) Diet A		**37**	**6**	*30*
(2) *Excluding* (Diet B):				
Meat	1lb 3oz.		...[1]	..
Dried Fruit	8oz.		4½	*4*
(—)			4½	*4*
Including (Diet B):				
Tinned Salmon	⅔ tin[2]		6	*4*
Macaroni	8oz.		3¾	...
Household Milk	1 pt.[3]		2¼	...
(+)		1	0	*4*
Total Outlay on Diet B		**38**	**1½**	*30*
(3) *Excluding* (Diet C):				
Ordinary Milk	1½ pt.		6¾	...
Cond. Milk, skimmed	1 tin[4]		5	*4*
(—)			11¾	*4*
Including (Diet C):				
Household Milk	3⅓ pt.[3]		7½	...
Biscuits	4oz.		3	*1*
Syrup	6oz.		3[5]	*3*
(+)		1	1½	*4*
Total Outlay on Diet C		**37**	**7¾**	*30*
(4) *Excluding* (Diet D):				
Sausage Meat	12oz.		9¾	...
Tinned Salmon...	1⅓ tin[2]	1	0	*8*
Bread	1lb. 8oz.		3½	...
(—)		2	1¼	*8*
Including (Diet D):				
Sardines	1 tin[2]		10½	*2*
Fresh Herrings...	1lb. 8oz.		10½	...
Biscuits	8oz.		6	*2*
Peas, Split	8oz.		2½	*2*
Suet	2oz.		2½	*2*
(+)		2	8	*8*
Total Outlay on Diet D		**38**	**0¾**	*30*

[1] No change in outlay ; average cost of meat raised from 10d. to 1s. a lb.

[2] One tin contains approximately 8 oz.

[3] In terms of skimmed fresh milk.

[4] One tin equals 1⅞ pt. of sweetened skimmed milk.

[5] Bought in 2 lb. tin.

[6] Approximately 3½ oz.

ounces of split peas, which, although not on sale everywhere, could be bought in some shops—or, alternatively, the housewife might have been able to obtain haricot beans, at about the same cost. The adjustments in diet D result in a slightly more varied diet which includes a tin of sardines and half a lb of biscuits, and requires 6¾ pence per week more than diet A. Finally, in Table IV, we have made allowance for the purchase of the family's sweets ration of 15 ounces per week. It yields the best nutritional value if bought in the form of chocolate. The consumption of three ounces of chocolate per head per week would probably slightly reduce the family's rather high intake of cheap carbohydrate foods, so that the net increase in the total cost of the diet would have amounted to 1 shilling 7¼ pence per week.

TABLE IV

Diet A Including Sweets Ration

	Quantity	Outlay s.	Outlay d.
Diet A		37	6
Excluding :			
Bread	1lb.		2¼
Semolina	4oz.		1
			3¼
Including :			
Plain Chocolate	15oz.	1	10½
Total Outlay		39	1¼

Only diet A can strictly be called a 'human needs' diet and used for a direct comparison with pre-war 'human needs' diets[1], since all the other diets include certain foods that are not absolutely necessary and that slightly raise the cost of the diet without altering the main nutritional values. Nevertheless, the several diets set out in Tables I, III, and IV, and the combinations of them that suggest themselves, serve to formulate some idea as to what approximately was the minimum cost for an intelligent housewife of feeding a family of 5 persons, in April 1946.

(3) *Relative Cost and Average Nutritional Intake* :

The relative outlay on the five main food groups in Table I, in November 1945 and April 1946, will be found in Table V. The steep rise in the cost of

TABLE V

Relative Outlay on 'Human Needs' Diet A

	Group (*a*)	Group (*b*)	Group (*c*)	Group (*d*)	Group (*e*) *excldg. Condiments*	Condiments	Total
November, 1945 ...	50.8	16.3	17.0	6.3	8.7	0.9	100.0
April, 1946	49.9	17.1	17.5	9.2	5.4	0.9	100.0

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[1] Although being superior to these diets in some respects, in particular as regards the allowance of fresh milk.

vegetables stands out in the figures for group (d), and the increase in the quantity of fresh milk in diet A is reflected in those for group (b).

The nutritional intake per ‘ man ’ per day from diet A[1] as calculated by means of the scales of ‘ man ’ values and nutritional values employed by us since the inception of this series of inquiries, is given in Table VI, for calories and proteins.[2] The corresponding calculations based on the Ministry of Health scales of nutritional requirements and the nutritional values of foods as set out in the Medical Research Council War Memorandum No. 14, are dealt with in detail in Part II of this paper (Tables VII to XI).[3]

TABLE VI

Institute of Statistics Scale of Nutritional Requirements and Intake from Diet A

Per ‘ Man ’ per Day*

		Calories	Protein	
			animal	vegetable
Gross Requirements :		3,300	50	50
Gross Intake :	November 1945 ...	3,300	51	54
	April 1946	3,300	50	51

* ‘ Man ’ value of family of 5 persons : 3.75.

PART II : INDIVIDUAL NUTRITION

So far, we have considered the nutritional intake from a ‘ human needs ’ diet as a whole, for a family of 5 persons. But how is this total intake, available to a family, related to the actual intake of each individual member of the household ? Assuming a housewife to lay out on food per week 37 shillings 6 pence to the best advantage and preparing three substantial family meals a day, can these meals be distributed in such a way that each of the 5 persons obtains an adequate share according to individual needs ? In attempting to deal with this question it is obviously impossible to aim at a high degree of precision. Foods are allotted by the housewife to each member of the family according to, on the one hand, dietary habits, and, on the other, individual wants and appetite. On account of this the individual intake of nutrients becomes dependent very much on chance and may vary considerably not only from day to day but even from week to week.

(4) *Food Intake per Person.*

We can, however, assess broadly the optimum amounts of food that, on the average, might constitute the individual share at the common table. This has been attempted in Table VII.[4] We have started with the basic assumption that—as is often the case—the husband cares little for sweet foods but wants

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[1] And also its modifications, shown in Tables III and IV, which have been made so as not to affect materially the nutritional intake.

[2] The ‘ man ’ values used for the data in Table VI are : husband, 1.00 ; wife, 0.85 ; child, 10–14 years old, 0.70 ; 2 children, 7–9 years old, 1.20.

[3] The calculations in Table VI refer to gross requirements and gross values of nutrients available, while all the calculations in Part II are based on data of net requirements and net intake.

[4] Although the total amount of bread given in Table I, is 20 lbs per week, we have only allocated 19 lbs of it individually, so that one lb would be available to whoever need it—not necessarily the same persons in each week.

TABLE VII. *Human Needs' Diet A for 5 Persons*

Per Person per Week

		Husband	Wife	Child 7—12[1]	Child 5—7
(*a*) Rationed Foods:					
1[2]	Meat	1lb. 12oz.	1lb. 4oz.	1lb. 8oz.	1lb.
2	Bacon	6oz.	3oz.	2oz.	2oz.
3	Margarine	7oz.	7oz.	6oz.	4oz.
4a	Cooking Fat	1oz.	1oz.	1oz.	1oz.
4b	Suet	1½oz.	1½oz.	½oz.	—
5	Sugar	6oz.	13oz.	13½oz.	10oz.
6a	Jam	½oz.	½oz.	1oz.	1oz.
8	Cheese	5oz.	3oz.	2½oz.	2oz.
9a	Eggs, shell	2eggs	2 eggs	2 eggs	2 eggs
10	Pulses	6oz.	3½oz.	2½oz.	1½oz.
11	Rolled Oats	12oz.	8oz.	7oz.	6oz.
12	Dried Fruit	2oz.	4oz.	3½oz.	3oz.
13b	Cond. Milk, skimmed	¼ pt.	¼ pt.	½ pt.	¾ pt.
14	Tinned Salmon	3oz.	2oz.	2oz.	1oz.
(*b*) Fresh Milk:					
15a	Ordinary	2 pt.	3 pt.	3½ pt.	3½ pt.
15b	School	—	—	1⅔ pt.	1⅔ pt.
(*c*) Unrationed Main Carbohydrate Foods:					
16	Bread[3]	6lb. 8oz.	5lb. 4oz.	2lb. 13oz.	1lb. 10oz.
17	Flour	1lb. 8oz.	9oz.	7oz.	5oz.
18	Potatoes	7lb.	3lb. 15oz.	3lb. 15oz.	2lb. 3oz.
(*d*) Vegetables (*excl. Potatoes*):					
19a	Swedes	1lb.	12oz.	10oz.	8oz.
19b	Carrots	8oz.	12oz.	12oz.	12oz.
19c	Cabbage	1lb. 10oz.	1lb. 6oz.	1lb. 7oz.	1lb. 2oz.
(*e*) Other Foods:					
20a	Macaroni	1oz.	1½oz.	2oz.	1½oz.
20b	Semolina	2oz.	7oz.	5½oz.	4oz.
21	Cocoa	—	1oz.	1oz.	1oz.
25	Pork Sausage Meat	4oz.	2oz.	2oz.	2oz.

[1] Two children in this age group.
[2] The serial numbers correspond to those in Table I.
[3] One lb of bread unallotted.

that—as is often the case—the husband cares little for sweet foods but wants savoury ones and, further, that at least several times a week he needs a packed meal to take with him to his place of work, while otherwise sharing the family meals. For his sandwiches would be required some of the bacon and cheese and, perhaps, also the tinned salmon. He is supposed to have generous helpings of porridge, potatoes, savoury dumplings and puddings. Part of the bread falling to his and the housewife's share might be eaten in the form of stuffings used to make the meat go farther. Of vegetables, the husband is likely to prefer swedes and cabbage to carrots, which latter he may only eat in mixed stews.

Many housewives are in the habit of having a cup of tea and a sandwich or piece of cake in the forenoon, and part of the housewife's share of sugar, milk, margarine, cheese, bread, flour, and dried fruit, may be consumed at this meal. The children would have a good helping of milk and sugar with their porridge, and a judicious allotment of vegetables at the other meals.

How the individual shares of rationed foods suggested in Table VII compare with the individual rations allowed by the Government in April 1946 is shown in detail in Table VIII. It will be seen that the husband has less than his full rations of sugar and milk, but more than his rations of most other foods. The housewife foregoes part of her meat ration, and the two older children part of their rations of bacon and cheese. It should, however, be noticed that their allowance of cheese is still 25 per cent above the ration of cheese that will be available to everyone from the end of May 1946, as it was in the summers of 1944 and 1945, *viz.*, 2 ounces. In Table VII, only the share of the youngest child has been reduced to this. Of other foods, too, the youngest child's share is less than his full ration, with the exception of cooking fat, eggs, and milk. Nevertheless, the diet of this child is, on the whole, well balanced—barring the intake of calcium—as can be seen from the indices in Table IX; in particular, a substantial proportion of its protein requirements are supplied in the form of first-class protein.

TABLE VIII

Indices of Consumption of Rationed Foods

	Ration per Pers. per wk.	Husband	Wife	Child 7—12	Child 5—7
			(Ration = 100)		
Meat	1s. 2d.	125	89	107	71
Bacon	3oz.	200	100	67	67
Margarine	6oz.	117	117	100	67
Cooking Fat	1oz.	100	100	100	100
Sugar Jam	12oz.	54	113	121	92
Cheese	3oz.	167	100	83	67
Eggs, shell	2 eggs	100	100	100	100
Milk, Adult	2½ pt.	80	120	—	—
Milk, Child	3½ pt.	—	—	100	100
' Points '	6	122	114	99	66

(5) *Nutrients Available from Individual Shares.*

The animal protein obtained by the youngest child from his share in the ' human needs ' diet as suggested by us would amount to 56 per cent of his total requirements of protein according to the Ministry of Health scale. Table IX shows that for the children in the higher age group this proportion would be 52 per cent, while for the husband it would be 46 per cent and for the housewife only 44 per cent.

The diet of the older children as set out by us in Table VII falls short not only of calcium but also of iron. With bread made of flour of 90 per cent extraction this shortage of iron would be about overcome.[1] Otherwise, small quantities of meat offals—heart, kidney, and, especially, liver—would have improved the iron content of the children's diet. But offals were very difficult to obtain, and, if bought, would probably have been reserved mainly for the husband.

To raise the available calcium in the children's diet to the optimum would

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[1] The bread consumed by the family in April 1946 is assumed to be made of flour of 80 per cent extraction.

Table IX. *Nutritional Requirements and Intake from Diet* A
Per Person per Day

Nutritional Requirements (Min. of Health Scale) :

	Husband	Wife	Child 7—12	Child 5—7	'Man' Value of Family of 5 Persons
Calories	3,000	2,500	2,100	1,500	3.37
Protein, gm. ...	70	60	65	50	4.43
Calcium, gm. ...	0.8	0.8	1.4	1.3	7.13
Iron, mgm. ...	10	10	13	8	5.40
Vit. A, I.U. ...	3,000	3,000	3,000	3,000	5.00
Vit. B_1, mgm. ...	0.90	0.75	0.95	0.68	4.68
Vit. C. mgm. ...	30	30	30	30	5.00

Indices of Intake from Diet A, *Table* VII (*Requirements*=100) :

	Husband	Wife	Child 7—12	Child 7—12 *plus 4½ pt. milk per week*	Child 5—7	Child 5—7 *plus 5 pt. milk per week*	Average of 5 *Persons per 'Man'*
Calories ...	101	100	100	*111*	102	*118*	102
Protein	144	128	105	*123*	101	*127*	119
Calcium	112	100	64	*98*	62	*100*	78
Iron	165	125	83	*86*	99	*104*	110
Vitamin A ...	107	133	136	*149*	127	*141*	128
Vitamin B_1 ...	226	191	127	*145*	131	*157*	163
Vitamin C ...	187	130	137	*150*	98	*112*	138
Intake of Animal Protein :							
Per Day ...	32 gm.	26 gm.	34 gm.	*46 gm.*	28 gm.	*41 gm.*	
As % of Total Protein Rqmts.	*46%*	*44%*	*52%*	*71%*	*56%*	*82%*	

require an additional 4½ pints of milk per week for each of the older children and an additional 5 pints for the younger child, or, in substitution, about three ounces of cheese for each pint of milk. The nutritional intake from the thus enriched diets will be found in Table IX in *italics*. These improved diets show, however, a considerable surplus of calorific intake as well as of protein intake, raising the intake of animal protein for the youngest child to 82 per cent of the total requirements and for the older ones to 71 per cent.[1] It seems doubtful whether children would be able to consume such quantities of milk or cheese without a substantial reduction in their intake of other foods. Yet if such reductions are made the diets tend again to become unbalanced, in particular as regards the intake of iron, of which mineral milk and cheese are very poor sources.

In considering the figures of calcium intake it is worth noting that the requirements of calcium according to the Ministry of Health scale, are very high for children of our two age groups, representing, respectively, 175 per cent and 163 per cent of the amount essential for an adult. For the husband and wife the intake of calcium from their shares would be satisfactory; but it should be realized that this depends largely on their eating very considerable quantities of calcium-fortified bread and flour, as is indicated by the data in Table X. The youngest child would derive only about 10 per cent of

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[1] With the additional milk, the actual intake of animal protein per day would be, for the youngest child, 41 grammes, and for the older children, 46 grammes, while their intake from the basic shares amounts to 28 grammes and 34 grammes respectively. The husband's intake is 32 grammes and the wife's 26 grammes.

TABLE X

Relative Intake of Calcium

	Husband %	Wife %	Child 7—12 %	Child 5—7 %
All Milk	23.7	38.6	59.3	66.4
Cheese	17.8	12.0	8.8	8.1
Bread and Flour	35.9	28.5	14.2	9.9
Rolled Oats	3.0	2.2	1.7	1.7
Potatoes	3.5	2.2	1.9	1.2
Other fresh Vegetables	9.1	9.4	8.2	7.8
All other foods	7.0	7.1	5.9	4.9
Total	100.0	100.0	100.0	100.0

its calcium intake from this source, and the two older children 14 per cent, while for the housewife it would supply nearly 29 per cent and for the husband 36 per cent. Moreover, even so the housewife's intake of calcium could only be just balanced by allowing her one fifth of her husband's ration of fresh milk. The data in Table X clearly show how narrow is the range of foods that are the main sources of calcium; and in comparing this range with the quantities of the respective foods allowed in the individual diet schedules of Table VII it becomes evident that the only foods by means of which the calcium intake of any member of the family could be significantly improved, are milk and cheese.

The role which the bulky carbohydrate foods—bread, flour, and potatoes—play in the nutrition of adults depending on an inexpensive diet, stands out strikingly in the figures relating to group (c) in Table XI. In the shares of the two adult members of the family, between 40 and 60 per cent of five out of the seven main nutrients enumerated in Table XI, are derived from the foods in group (c), while for the children the proportions are much less. It is instructive to consider in conjunction with the data for group (c) those for group (b), which relate to the intake of fresh milk. The last two columns in Table XI compare the relative sources of the main nutrients for the whole family, in November 1945 and April 1946. The effect of the increased allowance of bread and flour in our diet schedule for April can distinctly be noticed in these figures.

CONCLUSION

The main points of our survey can briefly be summarized as follows: (a) A 'human needs' diet in April 1946 that could be bought in Oxford without any difficulties was about 4 per cent dearer than an equivalent diet in November 1945. Most of this rise in cost was due to the seasonal rise in the prices of fresh vegetables excluding potatoes. During the same period the Ministry of Labour index of the retail cost of food remained unchanged. (b) More variety could be introduced into the 'human needs' diet at a slightly increased expenditure and palatable diets at low cost to suit different tastes, could be achieved somewhat more easily than in November. At the same time, in spite of the Government appeals to restrict the consumption of bread, a family compelled to keep expenditure on food down to a minimum,

TABLE XI. *Relative Intake of Nutrients from 'Human Needs' Diet* A

	Group	Husband	Wife	Child 7—12[1]	Child 5—7	April 1946 5 Persons[2]	Nov. 1945 5 Persons
		%	%	%	%	%	%
Calories :	(*a*)	39.1	42.2	47.1	47.8	43.3	46.2
	(*b*)	3.2	5.8	11.9	16.4	8.7	8.1
	(*c*)	53.9	44.5	32.8	26.7	41.1	38.1
	(*d*)	1.1	1.3	1.5	1.7	1.3	1.3
	(*e*)	2.7	6.2	6.7	7.4	5.6	6.3
	Total	100.0	100.0	100.0	100.0	100.0	100.0
Protein, total :	(*a*)	37.0	33.1	37.9	36.9	35.9	38.9
	(*b*)	5.1	10.0	19.5	26.2	14.2	12.9
	(*c*)	53.1	47.9	33.0	26.3	41.7	37.4
	(*d*)	1.8	2.1	2.4	2.6	2.2	2.1
	(*e*)	3.0	6.9	7.2	8.0	6.0	8.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0
Animal Protein :	(*a*)	78.8	67.5	58.2	49.9	62.6	59.3
	(*b*)	15.9	29.3	39.3	47.1	34.1	30.7
	(*e*)	5.3	3.2	2.5	3.0	3.3	10.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0
Calcium :	(*a*)	29.7	23.0	20.6	18.3	22.3	25.9
	(*b*)	21.0	35.6	54.0	61.8	44.7	41.5
	(*c*)	39.4	30.7	16.1	11.0	23.5	21.4
	(*d*)	9.1	9.4	8.2	7.8	8.4	8.5
	(*e*)	0.8	1.3	1.1	1.1	1.1	2.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0
Iron :	(*a*)	43.3	40.5	46.6	47.4	44.0	50.8
	(*b*)	1.0	2.1	4.1	5.6	3.0	2.5
	(*c*)	47.2	41.1	30.8	25.0	37.6	31.0
	(*d*)	6.6	7.8	9.0	10.2	8.1	7.2
	(*e*)	1.9	8.5	9.5	11.8	7.3	8.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0
Vitamin A :	(*a*)	33.5	23.5	20.5	16.2	22.5	22.5
	(*b*)	5.4	6.5	10.9	11.6	9.2	8.5
	(*d*)	61.1	69.9	68.6	72.1	68.3	68.3
	(*e*)	—	0.1	—	0.1	—	0.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0
Vitamin B_1 :	(*a*)	27.2	25.0	26.6	28.6	26.4	31.1
	(*b*)	3.7	7.8	15.8	21.6	11.1	10.2
	(*c*)	62.9	58.0	47.1	37.6	53.5	49.8
	(*d*)	4.3	5.8	6.8	7.9	5.9	5.9
	(*e*)	1.9	3.4	3.7	4.3	3.1	3.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0
Vitamin C :	(*a*)	0.3	0.5	0.9	1.0	0.7	0.9
	(*b*)	3.1	6.5	10.8	15.0	8.5	7.9
	(*c*)	57.1	45.6	43.9	34.0	46.4	46.4
	(*d*)	39.5	47.4	44.4	50.0	44.4	44.4
	Total	100.0	100.0	100.0	100.0	100.0	100.0[3]

[1] Two children in this age group. [2] Including one lb of bread unallotted to individual members. [3] Including 0.4 per cent from group (*e*).

would almost certainly have required more bread and flour in April 1946 than in November 1945, owing to the scarcity of cheap pulses. (c) Our analysis of the 'human needs' diet for a family in relation to *individual* requirements and potential intake, showed that it was possible to prepare with the foods in our diet schedule family meals that could be allotted in such a way as to ensure to each member an adequate share according to nutritional requirements, excepting the intake of calcium. (d) This optimum distribution, however, presupposes, on the one hand, a very high degree of what may be termed 'feeding discipline' within the family, and, on the other, a considerable knowledge of nutritional values of food and nutritional requirements on the side of the two adults, and, in particular, of the housewife. (e) The 'human needs' diet is satisfactory only for people with a healthy digestion who are capable of assimilating considerable quantities of bulky foods. (f) Incidentally, the analyses of the individual shares, available to each member of the family, indicate a cause—possibly the fundamental one —for the recurrent complaints that 'people have not enough to eat': the shortage of fats makes it difficult for adults to obtain a satisfactory calorific intake without a considerable strain on the digestion. In our family diet two ounces of margarine belonging to the ration of the youngest child have been allotted to the two adults. Moreover, while giving up part of his ration of sugar—also an important calorific food—a considerable proportion of the bacon ration of the three children is supposed to go to the husband, who thus has twice the amount to which his own ration entitles him. Even so he would have to consume daily one lb of potatoes and over a lb of bread and flour, besides the other bulky foods included in our schedule, in order to attain an intake of food yielding 3,000 calories a day.[1]

It may be well to end this survey with a word of caution : the cost of the family diet discussed by us, is largely determined by the particular structure of the family, and our analysis of the individual shares therefore supplies no gauge for measuring the cost of food for individuals, either children or adults. In general, while essential foods are rationed and subsidized, the family with young children will need to spend relatively less on food than the family without such children, since part of the rations obtained for the younger members of the family will help to supply a balanced diet for the older ones, at a low cost.

T. SCHULZ.

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[1] The calories supplied in each individual share of the family diet by the foods whose value is mainly—or solely—that of a body 'fuel', *viz.* margarine, cooking fat, suet, bacon, and sugar, can be expressed as indices based on the *average* amount per person of calories available from these foods in the diet. If we put this base as 100, the corresponding indices are : husband, 107 ; wife, 118 ; child, 7–12 years old, 101 ; child 5 to 7 years old, 73. We can compare with these figures another set of indices, obtained by taking the *average weight* per person of the same foods and equating this to 100. The individual shares as set out in Table VII then yield the following indices of weight : husband, 98 ; wife, 116 ; child, 7–12 years old, 105 ; child, 5–7 years old, 77. The importance of fat for supplying calories without 'bulk' is obvious from these figures.

POST-WAR ECONOMIC PROSPECTS IN THE U.S.S.R.

The Pre-War Position

Before the war Soviet heavy industry had developed sufficiently, as a result of the high rates of investment of the last dozen years, to challenge comparison with the leading industrial countries. Her steel output in 1938 was 18 million tons (and in 1940 just under 20 million) against Germany's 23 million in 1938. Her 1938 coal output was 133 million tons (in 1940 164 million) against Britain's 230 million in 1938 and Germany's 186 million. But output measured per capita of the population had still only reached a level of about a third that of Britain or Germany.[1] In consumer goods industries a similar comparative level applied to cotton fabrics; the output of leather footwear sufficed approximately to supply each member of the population with a pair of shoes annually, and was about a half the per capita level of Britain; while on the other hand the paper industry stood at only one-eighth of the British per capita level. Consumer goods industries in the pre-war decade, especially textiles, had been much more modest in their expansion (although certain of them such as boots and shoes, sugar refining, paper and bicycles had registered higher rates of growth, nearer to those of heavy industry). Since they occupied a place of second priority in the investment programme, their targets were apt to be selected for downward revision when any pruning of plans was called for by the insistent demands of rearmament (as happened in the middle of the Second Five-Year Plan). The expansion of the machine-making industry had laid a basis, however, for a rapid increase of capital equipment in the consumer goods industries : a process for which provision had already been made in the unfinished Third Five-Year Plan.[2] Production of certain types of machine tools was intended to reach the U.S.A. 1929 level of output by 1942. But of machine-tools generally Soviet industry was capable of producing only a comparatively small range of types; and output-capacity was deficient both in very large machine tools (e.g. of round 1,000 tons) and in small precision machine-tools.[3] Estimates were current on the eve of the war that, if the level of output planned for 1942 were maintained, the total stock of certain types of capital equipment (the ' equipment park '), such as turbines, electric motors and cotton spindleage, expressed as a ratio to the population, would attain to the U.S.A. 1937 level by 1955.[4]

Transport remained an important bottleneck-factor on industrial development. The load-coefficient of railroad track with freight was relatively high, compared for example with U.S.A., and was three times the pre-1914 figure; and this despite the fact that the quality of the permanent way was for the most part below that of America and western Europe with regard to ballasting, gradients and weight of rails.[1] For this reason, under the Third Five-Year Plan a great deal of attention was being paid to qualitative improvement of existing railroads, including double-tracking of lines, to the improvement of water transport systems and to the beginnings of long-distance motor-roads, especially in the west. For the same reason, emphasis was placed on the location of weight-losing lines of production nearer to their raw materials, and on a greater measure of regional self-sufficiency, on the one hand in the case of certain consumer good industries, on the other hand in the case of heavy industry itself as regards the balance between different stages of production in each of the main regions. Examples of this latter tendency were the attempt to supply the coal-deficient Urals industry with coal from a nearer source than Kuznetsk (namely from Karaganda by a newly-built railway between Kartaly and Akmolinsk); to repair the ore-deficiency of Kuznetsk from newly developed Altai ores instead of bringing ore by a 1200-miles haul from the Urals; and the opening up of the arctic Pechora coalfield (at Vorkuta) at the extreme northern end of the Urals and the connection of it with the northern railway network by a 700-mile line (completed during the war) to supply coal to the industry of Leningrad and the northern provinces so as to reduce their reliance on Donbas coal from the extreme south.

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[1] In electricity and steel about a third of Britain and Germany, pig-iron about a half of Britain and coal about a sixth. Figures of output *per worker* for 1935 in such varied industries as iron, coal, paper and boots and shoes showed a level of about a quarter (or slightly less) of the equivalent 1929 figure for U.S.A. (V. Mezhlauk in *Planovoe Khoziaistvo*, 1936, No. 7, 15).

[2] *E.g.*, the output of spindles, expressed per head of the population, was in 1937 less than one-tenth and of looms less than one-fifth the equivalent U.S.A. figure. The target for 1942 raised the output of spindles to slightly more than a half and of looms to two-thirds the U.S.A. figure. (D. Erlich on ' The Cotton Industry and Basic Economic Problems in U.S.S.R. ' in *Plan. Khoz.*, 1940, No. 9, 85).

[3] B. Sukharevsky on ' Machine Construction and Basic Economic Problems' in *Plan. Khoz.*, 1940, No. 6, 12–3, 25–6.

[4] *Ibid.*, 19.

As regards agriculture, there had been a considerable increase both of grain production and still more of industrial crops (e.g. cotton, flax, beet, tobacco, oilseeds) in the decade before the war. In the case of grain this increase over the period had come rather more from increase of area than of yield; although the reverse was coming to be true in the second half of the decade. In the case of industrial crops increase of yield in most cases had contributed more than enlargement of area (the total area under industrial crops having increased by about a third, and total output of leading crops like cotton, flax and beet having been doubled and of cotton trebled). The growth of the chemical industry (of which the output had increased 5 or 6 times between 1932 and 1937 to a level above the German 1929 output) had made available an increased supply of fertilisers for agriculture. But despite the increase, the supply of these sufficed at most for a tenth of the cultivated area, and the policy had been to concentrate their use on land devoted to industrial crops, especially cotton and beet. Artificial fertilisers act strongly on crops in the northern *podsol* zone of the country with its poor soils (more strongly than on the black earth soil of the south, where lack of humidity is the main factor in depressing yields), and fertilisers hold out much promise for the future of higher grain yields on the regions of relatively poor soils (which in the west and north-west are regions of more abundant rainfall), their tendency being an equalizing one on the yields of different soils and regions. For the time being, however, the pre-war policy had been in the case of grain crops to rely mainly on improved rotation, and in particular on an extension of clover and lucerne, the use of which had previously been very small.[1] But grain yields remained on a very low level compared with the west (about a half the German level), and a recent American estimate suggests that per person of the farm population agricultural productivity may have been a quarter or even less what it is in U.S.A.[2] In many ways of more immediate importance for the development of industry (providing in a sense the 'real fund of working capital' for an enlargement of industry and of industrial construction) had been an increase in the *marketable surplus* of agricultural products. In the case of grain, this had been the principal result of the new mechanized collectivized farming. Mechanization had been highly labour-saving,[3] and had simultaneously released labour from the land and yielded food surpluses for the towns by reducing the number of mouths in the village. Livestock meanwhile had recovered (except for horses) from the disastrous decline of the early '30's; but save for pigs had done little more than recover the leeway previously lost.

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[1] Seventy-three per cent of ballasting remained sand-ballast and only 6 per cent crushed stone, and the weight of rails was about 12 per cent less than in France. (I. Kovalev in *Plan. Khoz.*, 1945, No. 5, 7).

As regards the man-power position, the 12 to 13 years before the war had witnessed approximately a doubling of the urban population;[4] of which increase some 20 million represented migration from the villages. The rural population declined absolutely by about 5 per cent, despite a natural increase for the whole country of 15.9 per cent between the 1926 and 1939 censuses; the number employed in industry increased more than three times; and the total of wage and salary earners by nearly three times, rising from one-seventh to compose one-third of the occupied population. An interesting detail concerning the trained man-power position is that in the years before the war the needs of industry for high-grade engineers (university trained) had been better supplied than the need for middle-grade technicians (products of technical secondary schools), so that in certain leading branches of industry there was said to be an abnormally small ratio of the latter to the former, with

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[1] The area sown to clover and lucerne had been a bare 3 per cent, or about a tenth of the Danish and under a third of the German figure. Clover and lucerne are specially valuable in putting nitrogen into the soil; and Soviet estimates suggested that to raise the area sown to these up to the German level (as a proportion of the arable area) would give as much nitrogen to the soil as the output of 60 to 70 large nitrogen factories. (Article by Profs. Prianishnikov and Lebediantsev in *Plan. Khoz.*, 1935, No. 3, 87–9). Under the 3rd Five-Year Plan it was planned to increase the area under clover on collective farms in the *podsol* zone and the northern fringe of the black earth belt by 4 or 5 times.

[2] N. Jasny in *Journal of Farm Economics*, May 1945, 119–20.

[3] Equipment in tractors, measured in horse-power, had increased 10 times between 1928 and 1937, attaining a figure in 1940 of half a million units (between a half and two-thirds of the U.S.A. 1929 figure), and about 10 million horse power. The coefficient of tractor-utilization was high, owing to their employment being organized through the Machine Tractor Stations.

[4] This represented a somewhat faster rate of growth apparently than that of urban dwelling accommodation, which since 1923 had grown by about 80 per cent. (Cf. A. Sharov in *Plan. Khoz.*, 1945, No. 3, 42.)

'irrational utilization' of the more expensively trained *cadres* on work which could have been performed by a lower-grade of technician. This situation evidently underlay the campaign for new technical schools and also the reintroduction of fees for higher education (to divert less promising material from university education and from entry to the highest grade of specialists into the medium grade) just before the war; and it is said to be a problem that still calls for solution to-day.[1]

The War Period

It is now a commonplace that as a result of German occupation, the U.S.S.R. lost not only 40 per cent of her pre-war grain area, 85 per cent of her beet, 30 to 40 per cent of her cattle and 60 per cent of her pigs, but also a half of her coal and of her steel capacity and two-thirds of her iron-ore. The oil industry suffered to a minor but appreciable extent by German occupation of some centres of high-grade fuel-extraction in the northern Caucasus (e.g. Maikop). Nevertheless, her oil output in 1943 was a sixth as large again as in 1940. When the Germans retreated, their devastation was extraordinarily thorough; mine-workings being completely wrecked and flooded, the railroad track rendered unusable without very extensive re-laying, and the countryside for hundreds of miles made a wasteland, devoid of livestock and buildings and sometimes of inhabitants. Nearly 2,000 towns, 70,000 villages and factories employing 4 million officially stated to have been partially or wholly destroyed and 25 million persons rendered homeless compose the sum of this appalling devastation, which Soviet estimates place at half the material devastation in Europe.

At the same time the war years witnessed a large expansion of industry east of the Volga, not only as a result of evacuation of plants from the west,[2] but also as a continuation of pre-war development-trends in the eastern regions. Investment in new steel plant, for instance, continued during the war on an impressive scale. As a result, steel production in the eastern regions rose by 50 per cent; and by the last year of the war it had probably reached a level as high as three-quarters of pre-war output, despite the loss of the Ukraine (which on the eve of the war was responsible for about a half of the steel production). The capacity of electrical power stations in the Urals, Siberia, Central Asia and the Volga regions is also reported to have doubled in the war years. What is specially remarkable is that by the end of 1945 the coal output of the whole country was stated to have again reached the pre-war level (although coal remains in short supply owing to greater demands on it, partly by reason of the growth of coal-burning electricity stations and the putting out of action of several large hydro-electric plants).

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[1] The target ratio between the two grades has been regarded as being about 2:3, whereas in many branches of industry the actual ratio is said to be exactly the reverse of this. (S. Kaftanov on 'Preparation of Specialists in the Forthcoming Five Year Plan' in *Plan. Khoz.* 1945, No. 5, 36–7).

[2] An idea of the extent of this evacuation can be gained from the statement that more than 70 per cent of the total capital equipment (other than building structures) of Leningrad industry was evacuated in the course of 1941–2 to the eastern regions. (L. Volodarsky on 'Reconstruction and Development of Leningrad Industry' in *Plan. Khoz.*, 1945, No. 5, 64.)

Like the war industries of other countries, Soviet war industry witnessed an extensive rationalization drive; and as a result it has had some important improvements in productivity to place on the credit side of the war-time balance sheet. These improvements were apparently due mainly to the use of assembly-belt methods of mass production, which had only been introduced into certain types of production before the war (e.g. tractors, motors, electrical engineering), but ' were widely extended in the war years, and particularly in 1944, over a whole series of branches of industry ', both in armament production and the making of machine-tools as well as in the manufacture of components : with a consequential reduction of labour cost per unit of output ' by 30–40 per cent and more in many lines of war production '.[1] This was, of course, assisted by standardization of design in war industry. But it is being set as a target of the reconversion period that the same methods should be adapted in the switchover to the ends of civilian goods production, to yield appreciably higher standards of labour productivity in the latter than prevailed on the eve of the war. This will be assisted by the higher degree of standardization existing in Soviet industry than exists at any rate in this country.[2] Some successes have already been recorded in such transfer in the course of 1944 and 1945, especially in machine-tool production (although there is a limit set to its application here by the multiplication of new designs of machine-tools) and general engineering; and propaganda is being made to-day for its extension in light industries such as the food and clothing industries and the prefabrication of building materials.

Restoration

In the tasks of restoration and reconversion the past year has a number of quite impressive achievements to its credit. Nevertheless, in the restoration of the devasted agriculture, villages and towns of the western districts, of the light industries in the centre and west and of the mining and heavy industry in the Ukraine an enormous task still remains. On January 1st of this year, the transfer to-date of 2½ million from dug-outs to dwellings was reported (in addition to the restoration of 70,000 schools and 6,000 hospitals). Yet impressive as this figure is, it is only one-tenth of the total rendered homeless by the war. In Stalingrad one-sixth of the dwellings had been rendered habitable, but two-thirds of the former inhabitants were back in the town. 50,000 kilometres of railroad track are said to have been restored as well as half that distance beyond the western frontiers of the U.S.S.R. Of damaged waterway systems the Svir-lock system has been restored, thereby linking

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[1] Academician A. Baikov in *Plan. Khoz.*, 1945, No. 2, 48–9 ; S. Turetsky in *Plan. Khoz.*, 1945, No. 3, 61.

[2] Already in the discussions which preceded the launching of the First Five-Year Plan the issue was being posed as to whether Soviet industry should follow ' the path of English industry, producing expensive things of specially high quality ' or ' the path of American industry, geared to simplified production for mass consumption ', with an emphatic preference for the latter as the correct line of development for Soviet industry in view of ' the lack of capital and the need for maximum economy of means, and also the swift tempo of technical progress '. (M. Aronovich on ' Problems of Standardization in Industrial Reconstruction ' in *Plan. Khoz.*, 1929, No. 5, 122–3). This article went on to complain of ' extreme conservatism of consumers ' as an obstacle to standardization.

Leningrad with the upper Volga through the Mariinsky canal; and the first section of the Dnieper-Bug canal is available for navigation. But the northern half of the waterway to the White Sea from the Baltic is still unusable, and there is still no through traffic along the Dnieper (although the completion of work on the great Dnieper dam and its lock-system is promised by the end of this year). By the end of the war restoration work was said to have been completed in mines covering about a third of the pre-war coal capacity of the Donbas, and preliminary drainage completed in mines covering about a half. By the end of 1945 the mines of the Rostov coal combine reported that they had reached their 1940 output-level. The Ukrainean section of the Donbas was even said to be producing last autumn 38 per cent of its pre-war average daily coal output; while in the Ukraine as a whole nearly 100 engineering plants were in production again, including the Mariupol steelworks and the Voroshilovgrad locomotive works.[1] In the summer of 1943 a very detailed plan was drawn up and issued as a directive of the central government for the restoration of agriculture in the liberated areas, including the return of livestock and machinery and the grant of loans for seed and for dwelling houses.[2] But no more than a fraction of the former livestock or even of agricultural machinery in these regions can as yet have been restored: probably by the end of 1945 little more than one-fifth of the machinery and one-eighth of the livestock destroyed or taken away by the Germans. In October last it was stated that three-quarters of the pre-war arable area in the Ukraine had been put under cultivation again, and that the equipment of Machine Tractor Stations had proved sufficient to undertake four-fifths of the ploughing of fallow and spring ploughing and a half of the winter ploughing.[3] But since the yield must be substantially lower than normal, the level of production in this region can hardly be more than half of the normal as yet.

De-rationing is to begin in the case of certain foodstuffs (bread, cereals and macaroni) this year, and to be completed in 1947. The supply of consumer goods, to which the transfer of some war-plants has been in progress for some 12 to 18 months, registers an appreciable advance on a year ago. But their production fell very drastically indeed in the war years, and the signs are that it will be several years before the pre-war output level for consumer goods is reached. The clothing industry, which had been maintained for army supplies, seems to take the lead in supplying the civilian market once more (boot and shoe production is said to be close to the pre-war level); and there is a good deal of publicity about the coming into production also in the near future of factories supplying radio sets, watches, women's knitted goods, household utensils and utility furniture.

The New Five-Year Plan

In his speech of Feb. 9th, Generalissimo Stalin set as long-term targets (requiring ' perhaps three new Five-Year Plans, if not more ', and designed to ‘ guarantee ’ the country ‘ against any accidents ’) a trebling of the pre-war steel output to 60 million tons (which compares with a peak U.S.A. output of 81 million in 1944), an increase of coal production by nearly three times the pre-war up to 500 million (rather more than double the pre-war British figure but slightly below the U.S.A. war-time peak), and an increase of oil production to 60 million tons, which is scarcely double the pre-war output, and is only a third of the U.S.A. figure for 1940. These represent rates of increase appreciably lower than those prevailing in the pre-war decade, even if we allow for the fact that the first 3 years of the fifteen are likely to be spent on making up the leeway of the war years; and the statement seemed to imply that a considerably more prominent place was being envisaged for investment in the consumer goods industries over these three post-war quinquennia than in the three pre-war quinquennial plans. The recently published details of the new Fourth Five-Year Plan indicate, however, that for the first post-war quinquennium investment priority is to remain with heavy industry. This is perhaps not surprising in view of the high rate of building, both domestic and industrial, which is the pre-condition for any restoration of normal civilian life and of normal industrial production in the western districts. We are told that the ‘ output of foodstuffs and consumer goods ’ by 1950 is ‘ to reach ’ and ‘ also to surpass the pre-war level,’ as a result of ‘ an annual increase of 17 per cent ’. In the ensuing discussion the Minister for Trade added that ‘ the marketable stocks of food commodities would increase by 50 per cent and of industrial consumer goods by 36 per cent ’ over the five years.[1] These statements imply that consumer goods industries have much the biggest leeway to make up, in consequence of the war-time devastation of such industries in the West and of the absence in their case of the war-time investment which in the case of heavy industry in the East partly compensated for the losses from German occupation. They also indicate the extent to which civilian consumption during the war must have fallen : an extent greatly surpassing anything experienced in this country.

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[1] Statement of N. S. Khrushchev at Kiev on Oct. 13th, 1945.

[2] Cf. *Sovhoznoe Proizvodstvo*, 1943, No. 8, 5–26.

[3] Khrushchev, Oct. 13th.

The 1950 targets for the metal and the fuel and power industries are set substantially higher compared with the pre-war level, with the exception of oil. For iron and steel they are set at 35 per cent above pre-war : 19½ million tons for pig-iron and 25½ million for steel; for coal the figure is 250 million tons or 51 per cent above 1940; for electricity the output-capacity is set at 70 per cent above 1940. The chemical industry has a figure of 50 per cent above pre-war; with synthetic rubber production doubled. The rates of advance assigned to the engineering industry are outstanding: a doubling of the pre-war level of machinery output, and increases of 3.6 times for tractors, of 3.4 for motors, 2.4 for railway locomotives and 2.5 for electrical equipment. High targets are also set for non-ferrous metals, in order to raise home production to a level equal to consumption-needs : aluminium, nickel and molybdenum about twice, lead, zinc, magnesium two-and-a-half times and tungsten-concentrates four times the 1940 level. The target for oil, by contrast, is only set at 35 million tons, a mere 14 per cent above the pre-war level; and the contribution of the ' eastern districts ' (i.e. east of the Volga, and including the so-called ' second Baku ') to this output will rise from 12 per cent in 1944 (and 10 per cent in 1937) to 36 per cent in 1950: a remarkable shift of weight away from the traditional districts. The reason may partly be the difficulties caused by exhaustive working of the Baku field under the stress of war-time needs.

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[1] This latter statement apparently referred to values at *current* prices of each year, and allowed for a fall in prices, whereas the quantities referred to in the Plan itself are expressed in *unchanged* prices (of 1926–7).

COMPARATIVE FIGURES FOR CERTAIN PRODUCTS

Product	Unit	1913	1928	1938	1940	Target for 1942 under 3rd F.Y. Plan	Plan-Target for 1950
Pig-iron	m. tons	4.2	3.3	14.6	14.9	22	19.5
Steel	m. tons	4.2	4.3	18	19.1	27.5	25.4
Coal	m. tons	29.1	35.5	133	164.6	243	250
Oil	m. tons	9.2	11.7	32	32	54	35.4
Electricity	md. kwt	2	5	39	48	75	82
Tractors	thous.	—	1.2	80[1]	—	—	112
Motor Vehicles	thous.	—	.7	211	—	400	500
Grain	m. tons	80—82	73	90—95[2]	110—120	130	127
Sugar	m. tons	1290	1283	2519	—	3500	2400
Paper	m. tons	205	284	832[1]	—	1500	1200[3]
Cotton Cloth	m.metres	2227	2742	3491	—	4900	4686
Woollen Cloth	m.metres	95	93	114	—	177	159
Leather Boots and Shoes	m. pairs	—	29.6	213	—	258	240

[1] 1937 figures.

[2] 1937, a good harvest year, had shown a higher figure of 110—120.

[3] This figure is based on the output totals for the Russian, Karelian, Estonian and Lithuanian republics. No aggregate figure for the Union is given in the existing published draft of the Plan.

The over-all picture is given by the estimate that the output of industry as a whole will be raised by 1950 to 48 per cent above the pre-war level, and ' in districts affected by the occupation to 15 per cent '. This will require the restoration of some 3,200 medium and large industrial plants, and the new construction of a further 2,700. A rise of labour productivity of 36 per cent over pre-war is budgeted for, on the basis of an increase in ' the amount of mechanical equipment per worker by approximately 50 per cent '. The fixed capital of the economic system as a whole (including agriculture, transport and communal building, as well as industry) for 1950 is estimated at 8 per cent above the pre-war level.

In view of the increased strain of these developments on the transport system (total freight by railway, water and road being estimated to rise by more than a third over 1940), particular attention is devoted to railway development. In addition to some 4,500 miles of new lines (half of them in Siberia), it is intended to electrify 3,000 miles of track (again largely in the region between the Urals and Kuznetsk, where the increase of freight traffic has been and will be relatively greatest), to re-lay some 30,000 miles of track with heavier rails, and to introduce Diesel locomotives on certain lines, in the Volga region and North Caucasus, the Caspian plain and Central Asia.

For agriculture, compared with industry, the targets are much more modest: increases over 1940 of 7 per cent in the case of grain, 22 per cent for beet, 25 per cent for cotton, and 39 per cent for flax. Increases of cattle by 39 per cent, of sheep and goats by 75 per cent and of pigs by 200 per cent *over* 1945 are mentioned. The extent of restoration which this represents as compared with 1940 is not mentioned (except for the numbers in collective farms, where the increase is given as respectively 29, 62 and 35 per cent above 1940: figures which strike one as surprisingly high if they include the liberated areas as well as other regions). But a collation of figures given for the various republics suggests that recovery to the 1940 level will be almost, if not quite, attained by 1950.

M. H. DOBB.

TABULAR APPENDIX

EDITORIAL NOTE

The January issue of the BULLETIN contained a series of tables designed to show recent developments in the British economy. The following set of tables, called Series B, present figures illustrating the economic development in U.S.A. and some European countries. As in the case of Britain, 1938 was taken as the base year, but it should be remembered that 1938 was in some countries a year of severe recession. The figures are given as far as possible as monthly or quarterly averages.

When statistical data of foreign countries become more easily available, we hope to add other countries and to include new series in this survey.

Explanation of Symbols

( ) — figure is provisional or approximate.

N.A. — figure is not available

— — figure is negligible.

B. ECONOMIC DEVELOPMENTS ABROAD.

TABLE I

U.S.A.

Index Numbers 1938=100[1]	Monthly Average				1945		1946		
	1939	1943	1944	1945[2]	Mar.	Dec.	Jan.	Feb.[2]	Mar.[2]
Income Paymts. (Mthly.) :									
Total, $1,000 Mill. ...	5.9	11.9	13.0	13.4	13.7	14.3	13.0	12.1	N.A.
Index, adjusted	107	216	237	242	248	238	235	236	N.A.
Consumer Expenditures :									
Mthly. aver. $1,000 Mill.	5.1	7.6	8.2	8.7	8.2[3]	9.8[4]	N.A.	N.A.	N.A.
Index, adjusted	105	156	168	179	179	189	N.A.	N.A.	N.A.
Dept. Store Sales, Value Index	107	170	188	209	222	218	230	257	265
Vol Index of Farm Mktgs.[5]	109	133	140	137	151	144	150	156	N.A.
Vol. Index of Ind. Prodn.[6]	122	268	264	228	264	183	180	173	189
Durable Manuf.	140	461	452	351	442	237	214	185	232
Non-durable Manuf. ...	115	185	180	175	185	164	169	174	177
Constrctn. Contr. Awarded									
Value Index	113	106	64	106	112	169	167	212	224
Vol. Index[7]	113	86	50	81	86	126	123	155	N.A.
Index of Non-Agr. Empl.[8]	106	139	135	129	134	124	127	126	127
Index of Factory Emplyt.[9]	111	197	191	166	185	142	145	136	142
Index of Wholesale Prices	98	131	132	134	133	136	136	137	138
Do. Farm Products ...	94	179	180	186	184	191	188	190	193
Cost of Living Index ...	98	123	124	127	126	129	129	128	129
Facty. Av. Hrly. Earngs. cts.	63.3	96.1	101.9	102.3	104.4	99.4	100.3	100.2	N.A.
Do. 1938=100	101	153	162	163	167	159	160	160	N.A.
Mthly. Com. Expts.[10] Mill. $	260.3	206.9	238.0	336.6	285.5	527.7	649.0	556.1	673.0
Mthly. Ret. Impts. Mill .$...	189.7	281.7	322.4	339.5	365.6	279.5	404.8	306.9	373.0

Footnotes see bottom of next page.

TABLE II FRANCE

	Monthly Average				1945	1946			
Index Nos. 1938=100	1939	1943[1]	1944[1]	1945[2]	Mar.	Jan.	Feb.	Mar.[2]	Apr.[2]
Production of Coal[3]									
1,000 metr. tons	4,185	3,538	2,217	2,922	2,758	3,966	3,800	4,184	4,043
Index	106	89	56	74	70	100	96	106	102
Production of Steel									
1,000 metric tons	617	194	106	134	82	233	244	297	320
Index	128	38	21	26	16	45	47	57	62
Index of Production of :									
Cement	N.A.	74	36	44	25[4]	56	59	75	87
Commercial Vehicles	N.A.	48	26	83	60[4]	111	139	145	170
Passenger Cars	N.A.	—	—	0.85	—	4	8.5	10.5	12.5
Cotton Fabrics	N.A.	17	N.A.	22	N.A.	50	58	63	N.A.
Approved Building Plans[5]									
1,000 cbm.	706	79	55	151	99	365	N.A.	N.A.	N.A.
Daily Wagon loadings ('000)	41.1	21.9	8.9	16.7	11.5	24.2	27.1	27.9	N.A.
Index of Wholesale Prices[6]	105	234	265	375	290	479	483	539	555
Imports Mill. frs.	3,649	1,162	645	4,569	937	11,544	13,512	12,006	20,886
Exports Mill. frs.	2,633	2,945	1,997	949	454	2,399	3,728	4,195	7,568
Imports '000 tons	3,262[7]	388	186	859	135	2,152	2,381	2,044	2,916
Exports '000 tons	2,083[8]	1,067	588	220	52	560	577	664	809

Sources : Statistique Générale de la France ; La Vie Francaise, Hebdomadaire Economique et Financier ; League of Nations, Monthly BULLETIN of Statistics.

[1] The Production figures and the statistics of wagon loadings for 1943 and 1944 exclude Alsace-Lorraine.
[2] Partly provisional.
[3] Including lignite.
[4] February.
[5] Covering Greater Paris and 41 provincial towns.
[6] 1938 weights.
[7] 3,929,000 tons in 1938.
[8] 2,249,000 tons in 1938.

Footnotes to Table I.

Sources : Department of Commerce for Income Payments, Consumer Expenditures and Farm Marketings : *Board of Governors of the Fed. Res. System* for Industrial Production and Department Store Sales ; *U.S. Dept. of Labor* for Wholesale Prices, Cost of Living, Employment and Hourly Wage Earnings ; *F. W. Dodge Corp.* for Value of Construction Contracts awarded.

[1] All index numbers, except those of wholesale prices, cost of living (and wages) are adjusted for seasonal variations.
[2] Partly provisional.
[3] Monthly average, 1st quarter.
[4] Monthly average, 4th quarter.
[5] 1935—1939=100.
[6] Mining and Manufacturing.
[7] Value Index deflated with (Engineering News Record) Index of Construction Costs.
[8] All non-agricultural wage—and salary earners except those in Domestic Service and in the Armed Forces.
[9] Revised series.
[10] Excluding Lend-Lease and Re-exports.

TABLE III BELGIUM

Index Nos. 1936–38 = 100 Monthly figures or averages	1939	1943	1945	1945 Jan.	1945 Mar.	1945 Dec.	1946 Jan.	1946 Feb.	1946 Mar.
Industrial Prod. : Index									
General	N.A.	N.A.	35	16	21	57	N.A.	N.A.	N.A.
Coal	N.A.	N.A.	53	39	48	70	N.A.	N.A.	N.A.
Iron and Steel ...	N.A.	N.A.	28	13	14	52	N.A.	N.A.	N.A.
Textiles	N.A.	N.A.	35	3	11	60	N.A.	N.A.	N.A.
Food Ind.	N.A.	N.A.	31	20	21	49	N.A.	N.A.	N.A.
Coal Prod. 1,000 m. tons	2,487	1,979	1,310	1,037	1,322	1,732	1,944	1,813	1.920
Steel Prod. 1,000 m. tons	259	139	61	23	17	136	154	149	171
Imports[1] Mill. frs. ...	2,018[2]	535	1,144	66	287	2,557	2,670	2,786	2,861
Exports[1] Mill. frs.	1,850[2]	743	331	23	92	985	1,174	1,299	1,839
Imports[1] '000 tons ...	2,868[2]	659	632	88	68	1,473	1,440	1,555	N.A.
Exports[1] '000 tons ...	1,912[2]	537	121	14	38	268	372	384	N.A.

Sources : BULLETIN DE STATISTIQUE (Office, Central de Statistique) : Monthly BULLETIN OF STATISTICS, League of Nations.

[1] Figures for 1936–38 and after April 1945 refer to Belgium-Luxemburg.

[2] Monthly average 1936–1938.

TABLE IV SWITZERLAND

Index Nos. 1938 = 100	1939	1943	1944	1945	1945 April	1946 Jan.	1946 Feb.	1946 Mar.	1946 April
Index of :									
Industrial Employment[1]	99	105	100	110	101[2]	N.A.	N.A.	119[2]	N.A.
Wholesale Prices ...	104	204	208	206	206	201	199	200	199
Cost of Living	101	148	151	152	153	151	150	149	149
Tourism (monthly)[3] ...	77	24	26	42	27[4]	66	62	63	N.A.
Monthly Impts. Mill. frs. ...	157	144	99	102	48	235	253	313	279
Monthly Expts. Mill. frs.	108	136	94	123	119	149	177	201	199
Index of Imports at 1938 prices	117	47	32	31	14	80	88	107	98
Index of Exports at 1938 prices	96	63	40	57	51	66	80	99	93

Sources : Schweizerische Nationalbank, Monatsbericht.

[1] Number of wage-earners employed in a representative sample of establishments, including building. Quarterly figures or averages.

[2] 1st quarter.

[3] Based on the statistics of nights spent by foreign tourists in Swiss hotels.

[4] March.

TABLE V DENMARK.

Index Numbers 1938 = 100	1939	1943	1944	1945	1945 Mar.	1945 April	1946 Jan.	1946 Feb.	1946 Mar.	1946 April
Index of :										
Industrial Production[1] ...	105	87	87	79	78	73	92	95	96	95
Prodctn. of Animal Prodts.[2]	103	58	68	68	62	66	66	65	71	69
Prodctn. of butter[2]	96	66	67	69	49	58	56	55	59	68
Prodctn. of bacon[2]	99	51	65	59	54	53	57	53	65	N.A.
Wholesale Prices	105	191	194	190	197	196	182	180	182	183
Cost of Living	101	155	157	159	N.A.	159	158	N.A.	N.A.	157
Monthly Imports Mill. Kr. ...	145	102	97	59	33	30	137	143	185	174
Monthly Exports Mill. Kr. ...	131	103	112	75	51	46	98	93	90	108
Index of Imports at 1938 prices	98	34	32	21	11	10	53	56	71	66
Index of Exports at 1938 prices	101	44	46	32	21	19	45	43	42	51

Source : Statistike Departement, Statistike Eftnerretninger.

[1] Adjusted for seasonal variations.

[2] Revised series.

TABLE VI SWEDEN

Index Numbers 1938=100	1939	1943	1944	1945	1945 Mar.	1945 Dec.	1946 Jan.	1946 Feb.	1946 Mar.
Index of :									
Industrial Production[1] ...	106	93	93	91	72	107	107	109	109
Industrial Employment[2]	103	102	103	99	82	105	108	108	109
Wholesale Prices ...	103	175	175	173	175	170	164	165	164
Cost of Living	102	144	145	146	146[3]	N.A.	145	N.A.	145[3]
Monthly Imports Mill. Kr.	208	151	139	91	67	157	219	189	226
Monthly Exports Mill. Kr.	157	98	69	146	35	234	199	165	167
Index of Impts. 1938 prices	109	33	35	21	15	37	55	48	N.A.
Index of Expts. 1938 prices	106	37	26	56	13	91	75	62	N.A.

Source : Skandinaviska Banken, Quarterly Review ; *League of Nations,* Monthly Bulletin of Statistics.

[1] Mining and manufacturing. [2] Number of wage-earners in mining and manufacturing. [3] April.

TABLE VII NORWAY

Index Nos. 1938=100	1939	1943	1944	1945	1945 Mar.	1945 Dec.	1946 Jan.	1946 Feb.	1946 Mar.
Index of :									
Industr. Production	107	81	76	69	68	79	84	97	99
Wholesale Prices ...	102	175	177	177	178	166	167	167	165
Cost of Living	101	150	152	155	153	156	157	157	157
Monthly Impts. Mill. Kr. ...	114	84	60	101	26	113	100	86	116
Monthly Expts. Mill. Kr. ...	67	45	43	27	42	43	65	72	75
Vol. of Imports Index ...	111	29	19	46	7	55	44	37	52
Vol. of Exports Index ...	108	33	29	19	29	32	45	52	55

Source : Bulletin Mensuel du Bureau Central de Statistique du Royaume de Norvège.

TABLE VIII

COAL MINING IN PARTS OF EUROPE

1. *Output and Supplies of Coal in Western Europe Jan.–March, 1946*[1].

	Employment[2] ('000) Jan.	Feb.	Mar.	Production (000 metr. tons) Jan.	Feb.	Mar.	Imports[3] (000 metr. tons) Jan.	Feb.	Mar.
Germany[4]	245	239	224	5,254	4,907	4,359	—	—	—
France[5]	312	311	311	3,962	3,800	4,187	882	1,086	980
Belgium	160	161	159	1,944	1,813	1,921	367	256	463
Holland[5]	32	32	32	644	610	634	228	294	331
Luxemburg	—	—	—	—	—	—	137	155	169
Norway	—	—	—	—	—	—	115	135	206
Denmark	—	—	—	—	—	—	303	320	438

	January 1946 Employment.	Production.	Domestic Supplies[6]	March 1946 Employment.	Production.	Domestic Supplies.[6]
	In % of mthly. av. 1935–8			In % of mthly av. 1935–8		
Germany[4]	77[7]	47	47	70[7]	39	38
France[5]	139	102	83	139	108	88
Belgium	116	82	95	115	81	97
Holland[5]	105	58	64	105	57	72
Luxemburg	—	—	54	—	—	66
Norway	—	—	45	—	—	81
Denmark	—	—	64	—	—	93

Footnotes see botom of next page.

2. *Production of Coal in Poland and Czechoslovakia.*

('000 metric tons)

Monthly Averages	1938	1943	1945	1945				1946
				1st qr.	2nd qr.	3rd qr.	4th qr.	1st qr.
Poland[1]	3,175	4,583	1,976[2]	778[3]	1,384	2,354	2,990	3,732
Czechoslovakia[4] Coal	794[5]	892	758[6]	576[7]	384[8]	723	1,043	1,223[9]
,, Lignite	50[5]	71	1,052[6]	52[7]	609[8]	1,014	1,385	1,644[9]

Source : League of Nations, Monthly Bulletin of Statistics.

[1] 1938–1943 pre-war frontiers ; from 1945 present territory incl. Oppeln-Silesia, where coal production in 1943 was at the monthly rate of 2.5 million tons.

[2] Monthly average February-December.

[3] Monthly average February-March.

[4] 1939—April 1945 : ' Protectorate ' ; since April 1945, Bohemia, Moravia and Silesia.

[5] 1939.

[6] Monthly average May–December.

[7] Monthly Average February—April (Protectorate).

[8] Average May–June.

[9] January.

Footnotes to Table VIII. 1.

Source : European Coal Organization.

[1] Figures to nearest '000 workers and metric tons. March figures provisional, January figures revised.

[2] Underground and Surface Workers, excluding Office Staff.

[3] All solid fuel.

[4] Western Germany only (British and French zones).

[5] Including brown coal.

[6] Production *minus* exports *plus* imports. Export figures in the case of Western Germany are based for January on the statistics of coal actually exported, while for March they are based on reported arrivals in the receiving countries.

[7] Against average 1935–1937.